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Search Results -

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L with rhtB	7

Database: US Patents Full-Text Database
US Pre-Grant Publication Full-Text Database
JPO Abstracts Database
EPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Search: L3

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Search History

DATE: Friday, September 27, 2002 Printable Copy Create Case

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DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ			
L3	L with rhtB	7	L3
L2	L1 with (homoserine resistance)	0	L2
L1	amino acid production	356	L1

END OF SEARCH HISTORY

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Search Results - Record(s) 1 through 7 of 7 returned.

☐ 1. Document ID: US 20020102670 A1

L3: Entry 1 of 7 File: PGPB Aug 1, 2002

PGPUB-DOCUMENT-NUMBER: 20020102670
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020102670 A1

TITLE: DNA coding for protein which confers on bacterium Escherichia coli resistance to L-homoserine, and method for producing L-amino acids

PUBLICATION-DATE: August 1, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Livshits, Vitaly Arkadievich	Moscow		RU	
Zakataeva, Natalya Pavlovna	Moscow		RU	
Aleoshin, Vladimir Venyamiovich	Moscow		RU	
Balareova, Alla Valentinovna	Moscow		RU	
Tokhmakova, Irina Lvovna	Moscow		RU	

US-CL-CURRENT: 435/116; 435/193, 435/252.3, 435/69.1, 536/23.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

☐ 2. Document ID: US 20020058314 A1

L3: Entry 2 of 7 File: PGPB May 16, 2002

PGPUB-DOCUMENT-NUMBER: 20020058314
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020058314 A1

TITLE: DNA coding for protein which confers on bacterium escherichia coli resistance to L-homoserine, and method for producing L-amino acids

PUBLICATION-DATE: May 16, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Livshits, Vitaly Arkadievich	Moscow		RU	
Zakataeva, Natalya Pavlovna	Moscow		RU	
Aleoshin, Vladimir Venyamiovich	Moscow		RU	
Balareova, Alla Valentinovna	Moscow		RU	
Tokhmakova, Irina Lvovna	Moscow		RU	

US-CL-CURRENT: 435/106; 435/193, 435/252.3, 435/69.1, 536/23.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

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☐ 3. Document ID: US 20020055151 A1

L3: Entry 3 of 7 File: PGPB May 9, 2002

PGPUB-DOCUMENT-NUMBER: 20020055151
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020055151 A1

TITLE: Fermentation process for the preparation of L-threonine

PUBLICATION-DATE: May 9, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Hermann, Thomas	Bielefeld		DE	
Rieping, Mechthild	Bielefeld		DE	

US-CL-CURRENT: 435/106; 435/252.33

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

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☐ 4. Document ID: US 6303348 B1

L3: Entry 4 of 7 File: USPT Oct 16, 2001

US-PAT-NO: 6303348
DOCUMENT-IDENTIFIER: US 6303348 B1

TITLE: DNA coding for protein which confers on bacterium escherichia coli resistance to L-homoserine and method for producing L-amino acids

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

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☐ 5. Document ID: EP 1013765 A1

L3: Entry 5 of 7 File: EPAB Jun 28, 2000

PUB-NO: EP001013765A1
DOCUMENT-IDENTIFIER: EP 1013765 A1
TITLE: Gene and method for producing L-amino acids

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

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☐ 6. Document ID: EP 994190 A2

L3: Entry 6 of 7 File: EPAB Apr 19, 2000

PUB-NO: EP000994190A2
DOCUMENT-IDENTIFIER: EP 994190 A2
TITLE: DNA conferring L-homoserine resistance to bacteria, and its use

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

☐ 7. Document ID: US 20020102670 A1 EP 994190 A2 AU 9947550 A JP 2000116390 A SK 9901408 A3 CA 2284850 A1 ZA 9906042 A CN 1254014 A RU 2144564 C1 BR 9904955 A KR 2000029006 A MX 9909343 A1 US 6303348 B1 US 20020058314 A1

L3: Entry 7 of 7 File: DWPI Aug 1, 2002

DERWENT-ACC-NO: 2000-273530
DERWENT-WEEK: 200253
COPYRIGHT 2002 DERWENT INFORMATION LTD

TITLE: Novel RhtB protein, useful for generation of L-homoserine resistance in Escherichia bacteria and large-scale production of e.g. L-homoserine and L-alanine

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

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Terms	Documents
L with rhtB	7

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     (FILE 'HOME' ENTERED AT 14:16:48 ON 27 SEP 2002)

     INDEX 'ADISALERTS, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI,
     BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO,
CABA,
     CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DDFB,
     DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, ...' ENTERED AT 14:16:56 ON
     27 SEP 2002
               SEA (AMINO ACID PRODU?)
              ---------
              74   FILE AGRICOLA
              17   FILE ANABSTR
              20   FILE AQUASCI
             156   FILE BIOBUSINESS
              36   FILE BIOCOMMERCE
             763   FILE BIOSIS
             592   FILE BIOTECHABS
             592   FILE BIOTECHDS
             182   FILE BIOTECHNO
             177   FILE CABA
              33   FILE CANCERLIT
            1558   FILE CAPLUS
             101   FILE CEABA-VTB
               8   FILE CEN
              97   FILE CIN
               8   FILE CONFSCI
               1   FILE CROPB
               5   FILE CROPU
               4   FILE DDFB
               7   FILE DDFU
            1260   FILE DGENE
               4   FILE DRUGB
              18   FILE DRUGU
             335   FILE EMBASE
             158   FILE ESBIOBASE
               5   FILE FEDRIP
               2   FILE FOMAD
              80   FILE FROSTI
             127   FILE FSTA
              17   FILE GENBANK
               1   FILE HEALSAFE
              61   FILE IFIPAT
              52   FILE JICST-EPLUS
             218   FILE LIFESCI
               1   FILE MEDICONF
             352   FILE MEDLINE
               5   FILE NIOSHTIC
              12   FILE NTIS
               5   FILE OCEAN
             156   FILE PASCAL
               2   FILE PHARMAML
              29   FILE PHIN
             201   FILE PROMT
             365   FILE SCISEARCH
             195   FILE TOXCENTER
             808   FILE USPATFULL
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                9   FILE USPAT2
                2   FIL[redacted]ETU
              235   FIL[redacted]PIDS
              235   FILE WPINDEX
L1               QUE (AMINO ACID PRODU?)
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     FILE 'CAPLUS, BIOSIS, BIOTECHDS, MEDLINE, EMBASE, SCISEARCH' ENTERED AT
     14:22:14 ON 27 SEP 2002
L2             4 S L1 (S) L-HOMOSERINE
L3             3 DUP REM L2 (1 DUPLICATE REMOVED)
L4             1 S L1 (S) RHTB
L5            27 S RHTB
L6            16 DUP REM L5 (11 DUPLICATES REMOVED)
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=> d l6 ibib ab 1-16

L6 ANSWER 1 OF 16 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2002:276181 CAPLUS
DOCUMENT NUMBER: 136:305142
TITLE: Fermentation process for the preparation of L-amino acids using recombinant strains of the family Enterobacteriaceae
INVENTOR(S): Rieping, Mechthild; Bastuck, Christine; Hermann, Thomas; Thierbach, Georg
PATENT ASSIGNEE(S): Degussa A.-G., Germany
SOURCE: PCT Int. Appl., 63 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002029080	A2	20020411	WO 2001-EP10209	20010905
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10130192	A1	20020411	DE 2001-10130192	20010622
AU 2001093795	A5	20020415	AU 2001-93795	20010905

PRIORITY APPLN. INFO.:
DE 2000-10048605 A 20000930
DE 2000-10055516 A 20001109
DE 2001-10130192 A 20010622
WO 2001-EP10209 W 20010905

AB The invention relates to a fermn. process for the prepn. of L-amino acids,
esp. L-threonine and provides genetically modified microorganisms of the family Enterobacteriaceae enhanced to produce the desired product. The process consists of the following steps are carried out: fermn. of the microorganisms of the family Enterobacteriaceae producing the desired L-amino acid, in which microorganisms at least the pckA gene and/or the open reading frames yjfA and ytfP are individually or jointly attenuated and enrichment of the L-amino acid in the medium or in the bacterial cells, and isolation of the L-amino acid. Thus, Escherichia coli strain K12 MG442.DELTA.pckA, contg. an inactivated pckA gene, produced 3.7 g/L L-threonine compared to 1.5 g/L from the unmutated strain.

L6 ANSWER 2 OF 16 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2002:72263 CAPLUS
DOCUMENT NUMBER: 136:133691
TITLE: Recombinant Enterobacteriaceae overexpressing malate:quinone oxidoreductase gene mqo and their use in threonine production
INVENTOR(S): Rieping, Mechthild; Thierbach, Georg; Van Der Rest, Michel Eduard; Molenaar, Douwe
PATENT ASSIGNEE(S): Degussa AG, Germany

SOURCE: PCT Int. Appl., 39 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002006459	A1	20020124	WO 2001-EP5548	20010516
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
DE 10103874	A1	20020131	DE 2001-10103874	20010130
US 2002127678	A1	20020912	US 2001-801042	20010308

PRIORITY APPLN. INFO.:
DE 2000-10034833 A 20000718
DE 2001-10103874 A 20010130
US 2000-229329P P 20000901

AB The invention provides a process for the fermentative prepn. of L-threonine using Enterobacteriaceae which in particular already produce L-threonine and in which the nucleotide sequence(s) which code(s) for the mqo gene are enhanced, in particular over-expressed. Thus, the mqo gene of Escherichia coli was overexpressed in E. coli. The transformant produced 2-fold more threonine than did the parent bacteria.

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

L6 ANSWER 3 OF 16 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2002:349112 CAPLUS
DOCUMENT NUMBER: 136:354249
TITLE: Fermentative production of L-amino acids with poxB mutants of Enterobacteriaceae
INVENTOR(S): Thierbach, Georg; Rieping, Mechthild
PATENT ASSIGNEE(S): Degussa A.-G., Germany
SOURCE: Ger. Offen., 22 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10112107	A1	20020508	DE 2001-10112107	20010314
WO 2002036797	A2	20020510	WO 2001-EP11228	20010928
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002015910	A5	20020515	AU 2002-15910	20010928

PRIORITY APPLN. INFO.:
DE 2000-10054748 IA 20001104
US 2000-248210P P 20001115
DE 2001-10112107 A 20010314
US 2001-283612P P 20010416

AB The invention con[redacted]ns a procedure for the ferment[redacted]ve prodn. of L-amino acids, in particu[redacted] L-threonine, in which the pox[redacted]gene of an L-amino acid-producing microorganism of the family Enterobactericeae is inactivated and the resulting mutant is cultured to produced the L-amino acid. The mutant may addnl. overexpress another gene which enhances L-amino acid biosynthesis. Thus, a deletion mutation was introduced into the poxB gene of L-threonine-producing E. coli MG442. This mutant was further transformed with expression plasmids for the gdhA or rhtC genes. L-Threonine prodn. with the rhtC gene-expressing, .DELTA.poxB strain was increased approx. 2.6-fold relative to the parent strain.

L6 ANSWER 4 OF 16 BIOTECHDS COPYRIGHT 2002 THOMSON DERWENT AND ISI
ACCESSION NUMBER: 2002-10679 BIOTECHDS
TITLE: Fermentative preparation of L-threonine by employing Enterobacteriaceae bacteria in which nucleotide sequence(s) that code(s) for malate:quinone oxidoreductase (mqo) gene are
enhanced, particularly over-expressed;
involving fermentation and vector-plasmid pMW218mqo-mediated malate, quinone oxidoreductase gene transfer and expression in Escherichia coli
AUTHOR: RIEPING M; THIERBACH G; VAN DER REST M E; MOLENAAR D
PATENT ASSIGNEE: DEGUSSA AG
PATENT INFO: WO 2002006459 24 Jan 2002
APPLICATION INFO: WO 2000-EP5548 18 Jul 2000
PRIORITY INFO: DE 2001-1003874 30 Jan 2001
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2002-217000 [27]
AB DERWENT ABSTRACT: NOVELTY - Fermentative preparation (M1) of L-threonine involves employing Enterobacteriaceae bacteria, in particular those which already produce L-threonine and in which the nucleotide sequence(s) which code(s) for the malate:quinone oxidoreductase (mqo) gene are enhanced, in particular over-expressed. DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: (1) a polypeptide (I) from Enterobacteriaceae with malate:quinone oxidoreductase (Mqo) activity (E.C.1.1.99.16) is a polypeptide (a) having a fully defined sequence of 529 amino acids (S2) as given in the specification, (b) having an amino acid sequence which is at least 70% (preferably 95%) identical to (S2), (c) including deletion, insertion or exchange of one or more amino acids, (d) including N- or C-terminal lengthening by one or more amino acids, where the total length of the polypeptides according to (b)-(d) is 514-544 (preferably, 519-539), and in preferred form is 524-534 (preferably, 527-531) amino acid radicals; (2) a polynucleotide (II) from Enterobacteriaceae which codes for (I) is a DNA (a) that contains a nucleotide sequence corresponding to nucleobases 7-1593 of a fully defined sequence of 1720 nucleotides (S1) as given in specification, (b) that is degenerate with respect to (S1) due to degeneracy of genetic code, (c) that is a mutant with respect to (S1), containing sense mutations of neutral function, or (d) which is at least 70% (preferably, 95%) identical to (a) or (b), or (e) which is a polynucleotide that hybridizes with any one of the above mentioned sequences; (3) a plasmid pMW218mqo which contains the mqo gene of Escherichia coli; (4) a Mqo protein from Enterobacteriaceae with a N-terminal amino acid sequence of LNAVSM or AVSMAAK; and (5) a L-threonine-producing strain (III) of the genus Escherichia with the genetic and phenotypic features of the strain B-3996kurDELTAtdh/pVIC40, pMW218mqo. BIOTECHNOLOGY - Preferred Polynucleotide: (II) is a DNA which is capable for replication and codes for a polypeptide having a sequence of (S2). Preferred Method: (M1) most preferably involves carrying out the following steps: (i) fermentation of

microorganisms of the family Enterobacteriaceae in which at least the mqo gene is enhanced (overexpressed), optionally in combination with further genes, and (ii) concentration of the L-threonine in the medium or in the cells of the microorganisms Enterobacteriaceae, and (iii) isolating a L-threonine. In (M1), the Enterobacteriaceae bacteria (preferably, E.coli, or a bacteria of the genus Serratia), comprise further genes which are enhanced in addition to the mqo gene, e.g. (i) genes of the thrABC operon which code for aspartate kinase, homoserine dehydrogenase, homoserine kinase and threonine synthase, (ii) pyc gene coding for pyruvate carboxylase, (iii) pps gene coding for phosphoenol pyruvate synthase, (iv) ppc gene coding for phosphoenol pyruvate carboxylase, (v) genes pntA and pntB coding for transhydrogenase, (vi) **rhtB** gene which imparts homoserine resistance, (vii) gdhA gene coding for glutamate dehydrogenase, or (viii) rhtC gene imparting threonine resistance, that are enhanced at the same time. Preferably, bacteria (i) in which the metabolic pathways reducing formation of L-threonine are at least partly eliminated, and/or (b) which are transformed with a plasmid vector (pMW218mqo) that carries the nucleotide sequence coding for mqo gene, are employed. Optionally, along with the mqo gene expression, isopropyl beta-D-thiogalactoside expression is induced. The bacteria preferably comprises nucleotide sequence coding for Mqo protein (i) with the N-terminal amino acid sequence MAAKAK corresponding to (S2), (ii) with the N-terminal amino acid sequence of LNAVSM, or (iii) with the N-terminal amino acid sequence of AVSMAAK. USE - For preparing L-threonine by fermentation (claimed). The method is useful for preparing L-threonine and L-isoleucine. ADVANTAGE - The process provides improved fermentative preparation of L-threonine. EXAMPLE - Preparation of L-threonine with the strain B-3996kurDELTAtdh/pVIC40, pMW218mqo was carried out as follows. Preparation of the strain B-39996kurDELTAtdh/pVIC40 pMW218mqo involves culturing the L-threonine-producing Escherichia coli strain B-3996, described in US5175107-A in antibiotic-free complete medium for approximately ten generations to isolate a derivative of strain B-3996 which no longer contained the plasmid pVIC40. The strain formed was streptomycin-sensitive and was designated B-3996kur. The method described by Hamilton et al., Journal of Bacteriology (1989) 171: 4617-4622), which was based on the use of the plasmid pMAK705 with a temperature-sensitive replicon, was sued for incorporation of a deletion into the tdh gene which encodes threonine dehydrogenase. The plasmid pDR121 contained a DNA fragment from Escherichia coli 3.7 kilo-base pairs (kbp) in size, on which the tdh gene was coded. To generate a deletion of the tdh gene region, pDR121 was cleaved with the restriction enzymes ClaI and EcoRV and the DNA fragment 5 kbp in size isolated was ligated, after treatment with Klenow enzyme. The ligation batch was transformed in the E.coli strain DH5alpha and plasmid-carrying cells were selected. Successful deletion of the tdh gene was demonstrated after plasmid DNA isolation and control cleavage with EcoRI. The EcoRI fragment 1.7 kbp in size was isolated, and ligated with the plasmid pMAK705. The ligation batch was transformed in DH5alpha and plasmid-carrying cells were selected. The pMAK705 derivative formed was designated pDM32. For the gene replacement, B-3996kur was transformed with the plasmid pDM32. The replacement of the chromosomal tdh gene with the plasmid-coded deletion construct was carried out and was verified by standard PCR methods. The strain formed was tested for kanamycin sensitivity and was designated B-3996kurDELTAtdh. B-3996kurDELTAtdh was transformed with the plasmid pVIC40 isolated from B-3996 and plasmid-carrying cells were selected. A selected individual colony was designated B-3996kurDELTAtdh/pVIC40 and transformed with the plasmid pMW218mqo. Selection was carried out on LB-agar to which 20 microg/ml streptomycin ad 50 microg/ml kanamycin were added. The strain formed in

this way was designated B-3996kurDELTAtdh/pVIC40, pMW218mqo. The preparation of L-threonine by the strains B-3996kurDELTAtdh/pVIC40 and B-3996kurDELTAtdh/pVIC40, pMW218mqo was tested, the minimal medium and the production medium not being supplemented with L-isoleucine. The minimal medium, the pre-culture medium and the production medium were supplemented with 20 microg/ml streptomycin for B-3996kurDELTAtdh/pVIC40 and with 20 microg/ml streptomycin and 50 microg/ml kanamycin for B-3996kurDELTAtdh/pVIC40, pMW218mqo. Results showed that B-3996kurDELTAtdh/pVIC40 and B-3996kurDELTAtdh/pVIC40, pMW218mqo produced
6.26 and 7.72 g/l of L-threonine, respectively. (39 pages)

L6 ANSWER 5 OF 16 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 1
ACCESSION NUMBER: 2002:589786 CAPLUS
TITLE: Influence of threonine exporters on threonine production in Escherichia coli
AUTHOR(S): Kruse, D.; Kramer, R.; Eggeling, L.; Rieping, M.; Pfefferle, W.; Tchieu, J. H.; Chung, Y. J.; Saier, M. H., Jr.; Burkovski, A.
CORPORATE SOURCE: Degussa., R and D Feed Additives/Biotechnology, Halle,
33788, Germany
SOURCE: Applied Microbiology and Biotechnology (2002), 59(2-3), 205-210
CODEN: AMBIDG; ISSN: 0175-7598
PUBLISHER: Springer-Verlag
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Threonine prodn. in Escherichia coli threonine producer strains is enhanced by overexpression of the E. coli **rhtB** and rhtC genes or by heterologous overexpression of the gene encoding the Corynebacterium glutamicum threonine excretion carrier, thrE. Both E. coli genes give rise to a threonine-resistant phenotype when overexpressed, and they decrease the accumulation of radioactive metabolites derived from [14C] L-threonine. The evidence presented supports the conclusion that both **RhtB** and RhtC catalyze efflux of L-threonine and other structurally related neutral amino acids, but that the specificities of these two carriers differ substantially.
REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

L6 ANSWER 6 OF 16 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 2001:568125 BIOSIS
DOCUMENT NUMBER: PREV200100568125
TITLE: DNA coding for protein which confers on bacterium escherichia coli resistance to L-homoserine and method for producing L-amino acids.
AUTHOR(S): Livshits, VItaly Arkadievich (1); Zakataeva, Natalya Pavlovna; Aleoshin, Vladimir Venyamiovich; Balareova, Alla Valentinovna; Tokhmakova, Irina Lvovna
CORPORATE SOURCE: (1) Moscow Russia
ASSIGNEE: Ajinomoto Co., Inc., Tokyo, Japan
PATENT INFORMATION: US 6303348 October 16, 2001
SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Oct. 16, 2001) Vol. 1251, No. 3, pp. No Pagination. e-file.
ISSN: 0098-1133.
DOCUMENT TYPE: Patent
LANGUAGE: English
AB A bacterium which has an ability to produce an amino acid and in which a novel gene (**rhtB**) coding for a protein having an activity of making a bacterium having the protein L-homoserine-resistant is enhanced, is cultivated in a culture medium to produce and accumulate the amino acid

in the medium, and the amino acid is recovered from the medium.

L6 ANSWER 7 OF 16 BIOTECHDS COPYRIGHT 2002 THOMSON DERWENT AND ISI
ACCESSION NUMBER: 2002-05527 BIOTECHDS
TITLE: Fermentative production of L-threonine, useful in animal nutrition, comprises culturing enterobacterium with increased thrE gene activity;
Escherichia coli fermentation containing deleted tdh gene and Corynebacterium glutamicum mutant thrE gene
AUTHOR: RIEPING M
PATENT ASSIGNEE: DEGUSSA AG
PATENT INFO: DE 10102823 29 Nov 2001
APPLICATION INFO: DE 2000-1002823 27 May 2000
PRIORITY INFO: DE 2000-1026494 27 May 2000
DOCUMENT TYPE: Patent
LANGUAGE: German
OTHER SOURCE: WPI: 2002-115532 [16]

AB DERWENT ABSTRACT: NOVELTY - Fermentative production of L-threonine (I) using an Enterobacterium, especially one that already produces (I), in which activity of the thrE gene sequence (or sequences) is increased, particularly by overexpression, is new. DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: (1) plasmid pZ1thrE containing the thrE gene of Corynebacterium glutamicum ATCC 13032; and (2) Brevibacterium flavum DM368-2 pZ1thrE, deposited as DSM 12840. BIOTECHNOLOGY - Preferred bacterium: This is of the family Enterobacteriaceae, preferably the genera Escherichia or Serratia, particularly E. coli. Other gene activities may also be increased, especially: (i) the ABC operon (aspartate kinase, homoserine dehydrogenase, homoserine kinase and threonine synthase); (ii) pyc (pyruvate carboxylase); (iii) pps (phosphoenolpyruvate synthase); (iv) ppc (phosphoenolpyruvate carboxylase); (v) pntA and pntB (transhydrogenases); (vi) gdhA (glutamate dehydrogenase); and (vi) **rhtB** (homoserine resistance). Optionally metabolic pathways that reduce formation of (I) are at least partially 'switched off'. Preferably the bacteria are transformed with a plasmid vector, specifically pZ1thrE, but activity may also be increased by e.g. using mutant regulatory elements, increasing half-life of mRNA and inhibiting decomposition of enzymes. Preferred process: Expression of thrE is induced, particularly with isopropyl beta-D-thiogalactopyranoside, and cells are cultured for 10-160 hr at preferably 30-40 degrees Centigrade. Preferred nucleic acid: The specification includes sequences of 2817 and 1909 bp for the thrE genes of Corynebacterium glutamicum ATCC 14752 and 13032, respectively, also of the deduced proteins sequences (both 489 amino acids). Preparation: C. glutamicum ATCC 14752DELTAilvA was subjected to mutagenesis with transposon Tn5531 and mutants selected for retarded growth on medium containing threonylthreonyl-threonine (Thr3). One mutant that had the same growth as the parent strain in medium without Thr3 was identified and the insertion site in it was cloned and sequenced to identify a 1467 bp open reading frame for the thrE gene. The thrE gene from ATCC 13032 was isolated by polymerase chain reaction (primer sequences reproduced) and cloned conventionally into plasmids for subsequent cell transformation. USE - (I) is useful in animal nutrition, human medicine and the pharmaceutical industry. ADVANTAGE - Overexpression of thrE results in increased production of (I). EXAMPLE - The L-threonine-producing strain Escherichia coli B-3996 (US 5175107) was modified to delete the tdh gene, then transformed with pVIC40 (for resistance to streptomycin) and pMW218thrE (containing the Corynebacterium glutamicum thrE and kanamycin resistance genes). The transformants produced threonine at 7.57 g/l, compared with 6.26 g/l for a similar starin lacking pMW218thrE. (23 pages)

L6 ANSWER 8 OF 16 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 2
ACCESSION NUMBER: 2000:259844 CAPLUS
DOCUMENT NUMBER: 132:276602
TITLE: The **rhtB** gene conferring resistance to L-homoserine to bacteria and its use in developing strains for fermentation of amino acids
INVENTOR(S): Livshits, Vitaly Arkadievich; Zakataeva, Natalya Pavlovna; Aleoshin, Vladimir Venyamiovich; Belareova, Alla Valentinovna; Tokhmakova, Irina Lvovna
PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan
SOURCE: Eur. Pat. Appl., 14 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 994190	A2	20000419	EP 1999-118581	19990920
EP 994190	A3	20020814		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
RU 2144564	C1	20000120	RU 1998-118425	19981013
AU 9947550	A1	20000420	AU 1999-47550	19990913
US 6303348	B1	20011016	US 1999-396357	19990915
ZA 9906042	A	20000404	ZA 1999-6042	19990921
BR 9904955	A	20001212	BR 1999-4955	19991011
JP 2000116390	A2	20000425	JP 1999-289777	19991012
KR 2000029006	A	20000525	KR 1999-44027	19991012
CN 1254014	A	20000524	CN 1999-121353	19991013
US 2002102670	A1	20020801	US 2001-847392	20010503
US 2002058314	A1	20020516	US 2001-927395	20010813

PRIORITY APPLN. INFO.: RU 1998-118425 A 19981013
US 1999-396357 A1 19990915

AB Amino acid-fermenting strains of Escherichia coli carrying an allele of the **rhtB** gene that makes them resistant to L-homoserine are described. The gene was identified and cloned using a mini-Mu phagemid with clones selected for by conferring homoserine resistance. Two genes conferring resistance were identified. One was the prior art rhtA gene and the other was the novel **rhtB** gene. The gene also confers resistance to a no. of other toxic amino acid analogs including .alpha.-amino-.beta.-hydroxyvaleric acid.

L6 ANSWER 9 OF 16 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2000:456755 CAPLUS
DOCUMENT NUMBER: 133:85119
TITLE: Production of L-amino acids by bacterium transformed with amino acid excretion protein homologs
INVENTOR(S): Livshits, Vitaliy Arkadievich; Zakataeva, Natalia Pavlovna; Nakanishi, Kazuo; Aleshin, Vladimir Veniaminovich; Troshin, Petr Vladimirovich; Tokhmakova, Irina Lyvovna
PATENT ASSIGNEE(S): Ajinomoto Co., Inc., Japan
SOURCE: Eur. Pat. Appl., 29 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1016710	A2	20000705	EP 1999-125263	19991217
EP 1016710	A3	20000906		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

RU 2175351	C2	20011027	RU 1999-104431	19990309
AU 9964493	A1	20000706	AU 1999-64493	19991213
ZA 9907767	A	20000630	ZA 1999-7767	19991220
JP 2000189180	A2	20000711	JP 1999-373651	19991228
BR 9906287	A	20010123	BR 1999-6287	19991228
KR 2000048465	A	20000725	KR 1999-64627	19991229
CN 1261626	A	20000802	CN 1999-127522	19991230

PRIORITY APPLN. INFO.: RU 1998-124016 A 19981230
RU 1999-104431 A 19990309

AB A bacterium belonging to the genus Escherichia is provided having an ability to produce an L-amino acid, wherein the ability to produce the L-amino acid is increased by increasing an expression amt. of an L-amino acid excretion protein. Thus, genes yahN, yfiK, yeaS, and yggA are isolated by PCR amplification and shown to have homol. with lysine transporter LysE of Corynebacterium glutamicum and **RhtB** protein. When these genes are amplified in E. coli, the transformed organism shows increased levels of L-amino acid prodn.

L6 ANSWER 10 OF 16 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2000:441462 CAPLUS
DOCUMENT NUMBER: 133:69834
TITLE: Recombinant Escherichia coli strains containing genes rhtC and **rhtB** (encode proteins resulting in enhanced L-threonine and L-homoserine resistance activity) and use of strains for enhanced amino acid production
INVENTOR(S): Livshits, Vitaliy Arkadyevich; Zakataeva, Natalia Pavlovna; Aleshin, Vladimir Veniaminovich; Belareva, Alla Valentinova; Tokhmakova, Irina Lyvovna
PATENT ASSIGNEE(S): Ajinomoto Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 24 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1013765	A1	20000628	EP 1999-125406	19991220

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

RU 2148642	C1	20000510	RU 1998-123511	19981223
JP 2000189177	A2	20000711	JP 1999-356018	19991215
AU 9965435	A1	20000629	AU 1999-65435	19991222
ZA 9907819	A	20000630	ZA 1999-7819	19991222
KR 2000048340	A	20000725	KR 1999-60483	19991222
CN 1260393	A	20000719	CN 1999-126909	19991223
BR 9906283	A	20010403	BR 1999-6283	19991223

PRIORITY APPLN. INFO.: RU 1998-123511 A 19981223

AB The invention provides recombinant Escherichia coli strains with enhanced L-threonine and L-homoserine resistance activity and use of these recombinant E. coli to increased prodn. of amino acids, including L-threonine, L-homoserine, L-valine and L-leucine. The invention also relates that the recombinant E. coli are produced by genetic transformation of genes rhtC and **rhtB**, encoding proteins resulting in enhanced L-threonine and L-homoserine resistance activity, resp. The invention further provides the: (1) DNA (gene rhtC) encoding the protein resulting in enhanced L-threonine; (2) DNA sequence of gene rhtC; (3) a primer and probe specific for the rhtC gene and (4) protein sequence of the proteins encoded by genes rhtC and **rhtB**. The invention also included the DNA sequence for gene **rhtB**. In the example section, the invention included: (1) cloning and identification of

E. coli genes rhtC and **rhtB**; (2) methods used in prodn. of the recombinant E. coli strains and (3) effects of genes rhtC and **rhtB** proteins on homoserine and threonine prodn. in recombinant E. coli. The invention also reported on the homol. between the E. coli gene rhtC and **rhtB** proteins with lysine transporter LysE of Corynebacterium glutamicum.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L6 ANSWER 11 OF 16 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:231966 CAPLUS
DOCUMENT NUMBER: 130:317177
TITLE: The formation enthalpies of rare earth-4d transition metal alloys and intermetallic compounds
AUTHOR(S): Ouyang, Yi Fang; Jin, Zhan Peng; Liao, Shu Zhi; Zhang, Bang Wei
CORPORATE SOURCE: Dep. Phys., Guangxi Univ., Nanning, 530004, Peop. Rep. China
SOURCE: Zeitschrift fuer Metallkunde (1999), 90(3), 242-244
CODEN: ZEMTAE; ISSN: 0044-3093
PUBLISHER: Carl Hanser Verlag
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The formation enthalpies of the title compds. were calcd. with Miedema's semiempirical method. The calcd. formation enthalpies are in good agreement with exptl. enthalpy data available.
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L6 ANSWER 12 OF 16 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 3
ACCESSION NUMBER: 1999:424937 CAPLUS
DOCUMENT NUMBER: 131:196761
TITLE: The novel transmembrane Escherichia coli proteins involved in the amino acid efflux
AUTHOR(S): Zakataeva, Natalia P.; Aleshin, Vladimir V.; Tokmakova, Irina L.; Troshin, Petr V.; Livshits, Vitaliy A.
CORPORATE SOURCE: Ajinomoto-Genetika Research Institute, Moscow, Russia
SOURCE: FEBS Letters (1999), 452(3), 228-232
CODEN: FEBLAL; ISSN: 0014-5793
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A novel gene of E. coli, **rhtB**, was characterized. Amplification of this gene provides resistance to homoserine and homoserine lactone. Another E. coli gene, rhtC, provides resistance to threonine. The homologs of **RhtB** are widely distributed among various eubacteria and archaea; 1-12 copies of family members that differ in their primary structure were found in the genomes. Most of them are genes that encode hypothetical transmembrane proteins. Exptl. data that indicate participation of the **rhtB** product in the excretion of homoserine were obtained.
REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L6 ANSWER 13 OF 16 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 4
ACCESSION NUMBER: 1999:514310 CAPLUS
DOCUMENT NUMBER: 131:296676
TITLE: A new family of amino-acid-efflux proteins

AUTHOR(S): Aleshin, Vladimir V.; Zakataeva, Natalia P.; Livshits, Vitaliy A.
CORPORATE SOURCE: State Research Institute of Genetics and Selection of Industrial Microorganisms, Moscow, 113545, Russia
SOURCE: Trends in Biochemical Sciences (1999), 24(4), 133-135
CODEN: TBSCDB; ISSN: 0376-5067
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Multiple alignment of **RhtB** proteins is reported. The authors have found a set of proteins that are homologous to **RhtB** in a wide range of prokaryotes that includes proteobacteria, cyanobacteria, bacilli, mycobacteria, and the archaea Archaeoglobus fulgidus and Methanobacterium thermoauthotrophicum. The authors suggest that **RhtB** is involved in the efflux of homoserine and threonine in E. coli. It is proposed that the **RhtB** proteins belong to a new, widespread class of functionally important transporters that allow excretion of metabolites from different prokaryotes and archaea.
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 14 OF 16 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1997:419723 BIOSIS
DOCUMENT NUMBER: PREV199799718926
TITLE: Characterization of a pleiotropic mutation that confers upon Escherichia coli cells resistance to high concentrations of homoserine and threonine.
AUTHOR(S): Zakataeva, N. P.; Aleoshin, V. A.; Livshits, V. A.
CORPORATE SOURCE: State Inst. Genetics Selection of Industrial Microorganisms, Moscow Russia
SOURCE: FASEB Journal, (1997) Vol. 11, No. 9, pp. A935.
Meeting Info.: 17th International Congress of Biochemistry and Molecular Biology in conjunction with the Annual Meeting of the American Society for Biochemistry and Molecular Biology San Francisco, California, USA August 24-29, 1997
ISSN: 0892-6638.
DOCUMENT TYPE: Conference; Abstract
LANGUAGE: English

L6 ANSWER 15 OF 16 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1996:739143 CAPLUS
DOCUMENT NUMBER: 126:63530
TITLE: Hydriding characteristics of terbium and rhodium intermetallics
AUTHOR(S): Kulshreshtha, S. K.; Jayakumar, O. D.
CORPORATE SOURCE: Chem. Div., Bhabha At. Res. Cent., Bombay, 400 085, India
SOURCE: Journal of Materials Science Letters (1996), 15(22), 1942-1944
CODEN: JMSLD5; ISSN: 0261-8028
PUBLISHER: Chapman & Hall
DOCUMENT TYPE: Journal
LANGUAGE: English
AB TbRh2 started to absorb H after the second activation cycle and attained a satn. compn. of TbRh2H3.0 in the fourth cycle of hydration. The crystal structure of TbRh2H3.0 was too complex to index by x-ray diffraction patterns. TbRh needed three cycles of activation, and the satn. compn. was TbRhH2.7. The crystal structure of TbRhH2.7 could be indexed as orthorhombic with a = 0.3872, b = 1.1368, and c = 0.4606 nm which corresponds to a lattice dilation of .apprx.27%.

L6 ANSWER 16 OF 16 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1995:569194 CAPLUS
DOCUMENT NUMBER: 123:15351
TITLE: Standard enthalpies of formation of terbium alloys, Tb+Me (Me .ident. Ni, Ru, Rh, Pd, Ir, Pt), by high-temperature direct synthesis calorimetry
AUTHOR(S): Guo, Qiti; Kleppa, O. J.
CORPORATE SOURCE: The James Franck Institute, The University of Chicago, 5640 South Ellis Avenue, Chicago, IL, 60637, USA
SOURCE: Journal of Alloys and Compounds (1995), 221(1-2), 50-5
CODEN: JALCEU; ISSN: 0925-8388
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The std. enthalpies of formation of 12 Tb alloys with late transition metals were detd. by direct synthesis calorimetry at 1474.+-.2 K. The values were TbNi5 -(27.4.+-.0.9), TbRu2 -(23.6.+-.1.7), Tb5Ru2 -(29.9.+-.1.9), TbRh -(72.3.+-.1.1), TbRh2 -(64.4.+-.1.5), TbPd -(85.2.+-.1.6), Tb3Pd4 -(85.5.+-.1.4), TbPd3 -(78.8.+-.1.5), TbIr2 -(70.6.+-.2.6), TbPt -(115.7.+-.2.9), TbPt2 -(96.7.+-.3.1), and TbPt3 -(85.6.+-.2.9) kJ/g-atom. The results are compared with predicted values from the A.R. Miedema model (1983) and with available literature data for TbPd and TbPt.